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Peripatologist
The Greater Pittsburgh Guild for the Blind

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MOBILITY IN PERSPECTIVE

*by Martha J. Ball**

Peripatologist — The Greater Pittsburgh Guild for the Blind

A dialogue is being carried on in the field of work for blind persons which is gradually increasing in momentum and is encompassing all aspects of the work and all facets of blindness. In this decade of the sixties, Change and Communication have become the bywords, characterizing not only our work but the times in general. The vast technological advances of our age have triggered in us a more open, dynamic attitude toward the problems of blindness. We find ourselves stretching out to new horizons, rather than waiting for the horizon to shrink toward us. We find increased emphasis on integration and acceptance of minority groups, including blind persons, as part of the changing times.

With acceptance there is developing a trend toward greater expectation of training and achievement on the part of those in many minority groups. More blind persons are securing jobs in fields which demand that the worker, whether he is sighted or blind, be prepared to fulfill the requirements of the job.

ALWAYS RESISTANCE TO CHANGE

More blind and partially-sighted children are being enrolled in public and private schools on the basis of their ability to cope with the demands of this type of educational system. At the same time, residential schools for blind children are emerging from their isolation and participating in a dialogue with other areas in the field, rather than in a didactic monologue. More educators are beginning to realize that the "education" of the blind child is only one part of his total habilitation process.

Always with change, there is resistance to change, which if applied in a constructive way, can serve as a balancing factor, helping us to evaluate our purposes and gain perspective. For change is not good, nor is it bad, in and of itself. We must always ask ourselves why we are changing, what we are becoming because of the change, and what we are leaving behind.

Nowhere in the field of work for blind persons is change more evident and more loudly proclaimed and denounced than in the area of mobility. New programs of mobility training are being established; already-existing programs are being attacked. Everyone has an opinion about the value and the meaning of mobility in the life of the blind person and in the philosophical and operational structure of the agency and school.

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This is one of the vitally important areas where we must attempt to gain perspective. We must evaluate mobility with regard to its place and importance in the field of work for blind persons; its relationship to other parts of the total field; its meaning to the blind person as a client, and its meaning to us as professionals. And, as in attempting to gain perspective in any situation, we must always refer to our particular point in time, so that in our feverish desire to change and progress, or to remain steadfastly unchanged, we do not lose contact with our goals and forget the focal point of our existence as professionals, the needs of the blind person himself.

Realizing the limitations of categorization and the danger to individual differences and variations which it introduces, nevertheless, there seem to be four general approaches to the mobility question taken by workers in the field:

1) Those in the field who feel that mobility is the fundamental problem for a blind person, encompassing all others, and that if the person becomes mobile, whether by training or merely by obtaining and using a device, he has found the total answer to his adjustment to blindness.

2) Those who feel that the question of mobility arises from a hypothetical issue — that the mobility of blind persons is not a problem and certainly not a problem that needs to be solved on a professional basis, or indeed on any kind of structured basis at all. These are the people who feel that it would violate the dignity and "normality" of the blind child even to suggest that he be helped to develop his awareness of the environment through training, or that for an adult to use a cane, dog or human guide would be to destroy his true independence.

3) Those in the field who recognize that mobility, somehow and to some extent, presents a problem to the blind person, and who do one of two things:

(a) for reasons of prestige, power, fund-raising, etc., respond to the growing demand in the fields of education and rehabilitation for qualified, professionally-trained personnel, by hiring mobility specialists and then, because the agency adheres to basic philosophical concepts of the past, not allowing them to operate effectively according to the principles, procedures and skills in which the specialists have been trained.

(b) permit and encourage other workers in the agency or school, such as home teachers, casework counselors, physical education instructors (sighted, partially-sighted, and blind), to familiarize the clients with mobility techniques without awareness of the physical or psychological problems involved or the knowledge to handle them.

This group, then, is arbitrarily adopting the mechanics of mobility training while rejecting the essential principles which govern such training.

4) Those who believe, genuinely and without reservation, that mobility training is a basic need and right of every blind person if he is to enter fully, inasmuch as he is able, into the mainstream of life. These people recognize that mobility is part of the total habilitation or rehabilitation process of the blind individual and that he is entitled to the best possible training in order to help him realize his potential. These are the people who will not sacrifice standards of personnel and programming in order to meet the present surging demand for mobility capability that increasing vocational opportunities have created. They realize that this "emergency" situation, i.e., this lack of qualified instructors and this lack of mobility in blind persons, has existed for a century and that to try to meet the need by providing sub-standard instruction is not only to defeat efforts to progress in the field, but, most important, to cheat the blind client.

Mobility Requires Definition

Of course, there are variables, such as facilities, money and time operating in any program and in any setting which will influence the type of service that can be provided. But it is necessary and vital for the integrity of the field to determine what factors are situational and, therefore, flexible and adjustable, and what factors are primary and cannot be adapted. When we make such an examination, if it is honest, we will be able to discard the dangerous, the misleading and the regressive philosophies and practices and direct our efforts to a more effective recognition and solution of the problems presented to us.

To put mobility in perspective with regard to the total field of work for blind persons, we must first of all define what we mean by mobility, for many times we use the same terms with different understandings.

Webster's Dictionary defines "mobility" as "the quality or state of being mobile;" "mobile" means "capable of moving with relative ease;" and "to mobilize" is "to become organized and ready."

These several definitions are cited to show that mobility for a human being implies a capacity, a readiness and a facility to move. "Motion," being the "act of moving the body or any of its parts," is part of the total mobility process, but is not in and of itself mobility.

It is characteristic of man's nature to be mobile, to change his surroundings, to initiate purposeful action. Thus, mobility in a human being enables him to interact with his surroundings, to influence his environment as well as to be influenced by it. As a result of this interaction, man communicates; man learns; man grows, matures, and becomes what it is in his nature to become.

Mobility for a blind person must be considered according to the same general definitions. It is a matter of fact and it is the whole philosophical basis of our work that a blind person is no different in kind from a sighted person. Therefore, we must accept the premise that there is nothing in the nature of blindness per se which says that a blind person is unable to initiate

his own movement or that he is unable to control his own actions within his environment.

Cannot be Limited to 'Foot Travel'

The difference between the blind and the sighted lies in the manner in which each communicates with and gains information about his surroundings and, thereby, orients himself. It may be said of both that the more meaningful and integrative the initial or basic orientation to the environment — in terms of training and variety and quality of experience — the better able the person will be to handle effectively more complex adjustments and activities.

Mobility for a blind person, as for a sighted person, cannot be considered to be only the physical act of moving and walking and should not be limited to the concept implied by the term "foot travel." The person must be aware of his surroundings and of his immediate position in relation to the factors in his surroundings. This is orientation, and it is a dynamic process, inherent in the total mobility function, for as the person moves, his surroundings are constantly changing and he has to keep up with them. Mobility, then, is not only being able to move but being able to establish and maintain contact with the significant realities of the environment as well.

The prime requisite for the development of a knowledge of reality in the human being is the proper functioning of his physical senses, for these are the channels which put him in direct contact with the external world and which are necessary even for him to communicate with himself.

This is not to say, however, that merely because the physical senses are functioning, all of them or only certain ones, the human being is going to 'know' reality. Each of the senses is designed to receive only certain specific stimuli from the total environment, and these impinge upon the person's awareness as discrete, isolated phenomena. For instance, the auditory nerve is activated only by sound waves; the proprioceptors in the muscles receive only the stimuli caused by movement of those muscles; the retina is only affected by light waves, etc.

But the human being, if he is to meet the environmental situation in its totality and act upon it effectively, must be able to compile and correlate the significant sensory data available into a meaningful interpretation of what is happening. The effectiveness of his subsequent action will be determined by how much he was aware of, how well he was able to correlate the information, and how accurately he was able to interpret its meaning for him.

Most Important of Physical Senses

The coordination of sensory data takes place to different degrees on various levels in the human being, because of the nature of his intellectual capacities, but it begins on the sensory level. The principle of sensory organization on this primary level has been called the "central sense," and it serves as a clearing house into which all sense data is channeled.1/

1/ Rev. Thomas J. Carroll. Blindness: What It Is, What It Does, and How To Live With It. Boston: Little, Brown, and Co., 1961, pp. 118-19.

For the sighted person, vision is the most important of the physical senses in terms of the type and amount of information given and the function performed. It has a longer range than any other sense. It is concrete and conveys limits, patterns and formations without being restricted to immediate time and place. It orients the person to his surroundings by informing him of the patterns of relationship that exist between himself and the objects that surround him. Vision extends the person outward toward the environment, and it brings the environment back to him. Thus, the sighted child, in his growth and development, builds up an interaction with his environment based primarily on what his vision conveys to him. He learns unconsciously that he can pinpoint with his sight his position, direction and distance in relation to other types of sensory stimuli, such as the sound of heavy footsteps he hears or the cool air currents he feels, and he acts upon this awareness by moving toward or away from the object he perceives as causing the sound or the breeze.

As the sighted child matures and grows to adulthood, he learns to depend on his vision to check on the information coming in through his other senses. Thus, his other senses take on a subordinate, although vitally important role to vision in his orientation to educational, social and vocational situations.

The blind person is a person who lacks or has lost the integrative sense of sight and because it is absent, he must organize his sensory data according to some other principle. It must be a principle of organization which will enable him to develop and maintain a realistic impression of the totality of his environment at any point in time or in any type of situation, so that he can act upon his sensory awareness with confidence. A congenitally blind person must organize his sensory perceptions within a spatial framework of auditory-tactual interaction.

An adventitiously-blinded person must integrate his remaining sensory channels within his previously-structured framework of visual images, which can be recalled and used for present orientation to the environment.

When his sensorium is so organized or reorganized and is functioning as an integral unit, the blind person has taken the major step in overcoming the fundamental effects of blindness. He has effectively mobilized his capacities and is able better to meet and handle the demands of daily life, whether they be in traveling, adjusting to a job, or whatever.

Must Develop Potential to Fullest

The concept of lack stressed above may rankle those of us in the field who do not like to think of the blind person — child or adult — in terms of what he lacks, but in terms of his normality and ability to learn and grow and be like everyone else.

Of course, the objective of any program of service for a blind person is to enable him to develop his potential to the fullest extent possible. But how do we know what is possible if, as indicated many times in our work with blind clients, we do not have an understanding of the primary effects of blindness? How then do we know what the blind person needs to develop in order to make a normal adjustment to life? And if we are not willing to admit that there are

special needs created by blindness that must be dealt with in special ways, then why are there agencies for the blind or schools for blind children or vocational rehabilitation programs?

Unless we face the reality of blindness at its very core, without the emotional overtones of fear or pride, we will not be meeting the needs of the clients, and our philosophies will be dangerously sterile.

Perhaps in no other area has this lack of understanding of the fundamental effects of blindness been more apparent than in the area of mobility and sensory development and training. Organized programs for sensory training have been avoided and attacked in this work as if we really believed what the sighted layman says about blind persons: that they possess a "sixth sense" or that they automatically develop acuity and efficiency in the use of the remaining senses.

'Facial Vision' by Sighted, too

Object perception is still talked about with awe and is presented by some as the all-purpose solution to the mobility of blind persons. This occurs today, twenty years after Dallenbach, Supa, Worchel, et al., proved that 'object perception' — or what was known as 'facial vision' — is a function of auditory stimuli in the high frequency range only and that it is possessed by sighted persons as well as by those who are blind.2/

And again, how many steps are we removed from realizing the isolating effects of blindness on the sensorium when we require blind children to take 12 years of physical education or music lessons and then allow them to emerge into the sighted community unable to walk with a natural, confident posture and gait and not knowng what an intersection is!

It is precisely in the realm of sensory functioning that the apparent differences between the sighted and the blind become most obvious. When the blind person has been trained in the use of his remaining senses, has effectively organized or reorganized his sensorium, and has become competently mobile, his blindness becomes less obvious and his 'normality' more readily acceptable.

Sensory training is not only valuable because it enables the blind person to DO something, such as develop skill with a mobility device, of which sensory training is an essential component, but, most important, it enables the person to BE something. It is the means of activating the capacity of the blind individual to develop his sensory, imaginative and intellectual nature to its fullest. If we do not provide the opportunity for training in orientation and mobility, we are not recognizing the nature of blindness as a perceptual deficiency; we are not giving him everything he needs in order to overcome the lack or loss of sight; and, therefore, we cannot expect him to assume responsibility for himself as an independent person living with dignity in the sighted world.

2/ M. Supa, M. Cotzin, and K. M. Dallenbach. "'Facial Vision': The Perception of Obstacles by the Blind." American Journal of Psychology, Vol. 57, 1944, pp. 133-183.

We recognize the value of the remaining senses to the blind person in his daily activities. We provide training in braille, typing, manual arts and machine operations, and we know that this is accomplished through the tactual and auditory media. We are becoming more knowledgeable about the differential tasks performed by each one of the senses, including vision, and about the sensory capacities of blind individuals in relation to sighted. And yet we in the field of education and rehabilitation are only beginning to realize that the blind or blinded person should receive training so that he himself understands his sensory capacities and can make up for the absence of the integrating function sight performs.

Effective Studies Since 1940

Reliable studies from 1940 until the present day have done much to destroy, at least for the experimenters, the theories of automatic sensory compensation by generally concluding that the differences between the sighted and the blind in basic sensory acuity are not significant. The observed differences in actual performances are attributed to the difference in level and kind of attention, learning and practice.

Axelrod, in his study of sighted and blind children's performance in tactile and auditory tasks, found that a child who in his early environment has been permitted free, extensive movement and/or has had visual experience, does better on tasks involving form discrimination and spatial problem-solving than the child who has had a restricted visual or proprioceptive experience. He concluded that the sighted, or the once-sighted, perform at a higher level in many experiments of sensory acuity and performance because of their broader base of experience and their increased opportunities to gather information incidentally through vision and visualization.3/

It is necessary, then, for the blind person to be exposed to meaningful experiences which will provide the opportunity for him to learn or relearn how to use his sensory capacities. This should not be allowed to happen incidentally, and the learning situations should be realistic, leading to significant accomplishments.

Extensive practice is a necessary and valuable technique for developing confidence in the use of the remaining senses, but if it is isolated, and not accompanied by increasing awareness and challenges, it will lose its effectiveness and often becomes busywork.

Thus, the blind child who in physical education is exposed to jumping, running, skipping rope, playing ball, etc., and is not made aware, on his own level of understanding, of how to walk and how to control effectively his general body movements and muscle reactions, will, despite the extensive activity in which he has participated, probably develop irregular habits of posture and gait and erratic body reactions which to the sighted person seem odd. This will also be true for the blinded adult who is put to work on an interminable assembly line in shop "training" programs.

3/ Seymour Axelrod. "Effects of Early Blindness," Research Series #7. New York: American Foundation for the Blind, 1959.

Since mobility is a fundamental activity which is involved in every phase of a blind person's life, it opens up possibilities for exploration, learning and achievement not available in any other basic activity. Thus, the development of confidence in the use of the remaining senses is most effectively accomplished in conjunction with the mastery of mobility skills.

Many Factors Under Consideration

Present and projected scientific efforts are being directed toward an intensive study of the ways in which man receives information and communicates through his various sensory modalities, with the purpose of applying the knowledge gained to the design, development and utilization of guidance devices for the blind.[4/] Under consideration in these studies are such factors as:

- what information can the guidance device pick up which vision would normally provide?
- what sensory channel would most efficiently receive the stimuli from the external environment as relayed by the device?
- and, of utmost importance, what kind of device will give the information the blind person needs without interfering with the normal functioning of his remaining senses?

It should be a sine qua non in the development of these guidance devices and in their field testing, that the remaining senses of the blind person who is to use or test the device be trained to their maximum. For only when we know what the blind person is capable of perceiving when his senses are functioning naturally to their highest degree of efficiency — and this will vary with the individual — only then will we be able to make more meaningful and effective those devices we give him in order to extend and augment his sensory awareness.

Since the training and use of the remaining senses is so vital to the blind person if he is to function normally in mobility as well as in all areas of life, would it not be logical to ask next what importance a mobility device can have for the blind person who has trained his remaining senses to their highest degree of capacity and efficiency?

There are different viewpoints held in the field on the question of mobility devices. Should a blind person have to use a device at all? Which device is best? How old should a blind child be before he is given a mobility device? Most workers in the field view mobility in toto as the use of a travel tool, such as the white cane or the dog guide. Others feel that the truly independent traveler is one who is so competent in the use of the sensory cues in the environment that he does not have to use a device.

4/ James W. Lisner, ed.. Proceedings of the Mobility Research Conference — Washington, D. C.: Sept. 25, 1961; Massachusetts Institute of Technology: Oct. 11-13, 1961. New York: American Foundation for the Blind, V, 1962, pp. 183-198.

These are misleading and dangerous concepts because they focus on the device rather than on the capacities and needs of the blind person and on his requirements for successful navigation in the environment.

No Device In Itself

No device or tool is good in itself. It is only good insofar as it helps the user accomplish something. And any device can be truly effective only if it is used in the manner in which it was intended.

Various types of mobility devices have been adopted by blind individuals in their attempts to become mobile. We will consider them but first we must find out if and why the blind person would have to use a mobility device at all.

We have defined mobility as the capacity, the readiness and the facility to move. Is it possible for the blind person, unaided, to be aware of and to control all the factors in his surroundings which he needs in order to travel safely, with ease and grace? The answer to this depends on the type of area in which the person is moving, the age and maturity of the individual, and the extent of independence within his life space that he wants and needs to achieve. For instance, the blind child, like the sighted child, is not mature enough, intellectually, emotionally or physically to accept the responsibility of complete freedom in mobility that the adult must have.

But for the blind person who is mature enough to want and need independence, who wants to determine for himself where to go and when to go, and who wants to do this in a manner which will make him appear normal to the sighted community, the answer is no. He cannot travel independently and safely unless he is able to use a SPECIAL mobility device or tool. (However, this is not to imply that because a person uses one of the mobility devices he is an independent or even a safe traveler.)

A special mobility device for a blind person is one which is designed to take over some part of the function that vision would perform for the sighted person during the navigation process. It must convey to him information about certain vital factors in the environment which his remaining senses, even though maximally trained, cannot give him when they are operating unaided, e.g., warning about obstacles in his path of travel which are not apparent to the senses of hearing or smell; information about the location of irregularities and discontinuities in the terrain, both upward and downward; and sufficient additional information about his surroundings so that he can proceed efficiently and safely.

Four Types of Special Devices

A special mobility device conveys such information by extending the remaining senses of the blind person further out into the environment and increasing his capability to receive and recognize meaningful stimuli. Thus, the long cane conveys information about the terrain, e.g., slopes, surface textures, drops, etc., by effectively transferring stimuli to the kinesthetic-tactual sense of the person. In learning to use a special device, the person must learn to coordinate the operation of the device with the functioning of the remaining senses, so that he will be prepared to receive and interpret the

incoming environmental cues reliably and react to them on the basis of a total impression.

To date, there are four types of special mobility devices for blind persons:

1) the human guide
2) the dog guide
3) the long cane (or prescription cane)
4) electronic guidance devices, still in the developmental and testing stages.

While each of these devices is designed with the general purpose of providing information and protection to the blind traveler, the type and extent of information given is specific to the device. The long cane gives information about the physical features of the environment in which the blind person is moving. The dog guide will protect the traveler from overhanging objects, while the cane will not.

But when considering these devices from the standpoint of the blind persons who use them, there can be no ascending or descending order of importance or effectiveness.

The use of any one of these devices must always be considered in the context of the blind individual's own life situation, his needs, his capacities, and the meaning the device has for him. For instance, for the person who travels independently with the long cane, use of a human guide cannot be considered a dependent mode of travel. It may be the best form of mobility in a particular situation.

Each Has Own Function, Value

A dog guide user may have chosen that mode of travel because he is interested only in getting from one place to another and does not want to be concerned with the details of the areas through which he is passing.

The aging blind person may not be physically capable of using a dog guide or a long cane but may be able to move about effectively within a perhaps limited sphere through the proper use of the human guide.

We have seen that mobility for a blind person, then, must be viewed on a continuum of capacity, skill and attitude, but it has two basic components — an organized sensorium and a device or aid. One cannot substitute for the other, since each has its own function and value. And therefore, mobility training necessarily involves the functional development of the remaining senses and the learning of a special technique or device.

People In Past Vitally Concerned

In this day of formal mobility training programs, professional mobility specialists, and electronic devices, we often may get the feeling that at last we are beginning to recognize and do something about the mobility problems of blind persons. However, in studying the history of mobility and the

development of mobility devices, one becomes aware of the progress that has been made over the years.

We are moving in step with the modern space age because people in the past were concerned with mobility and were in step with their age and sometimes far ahead.

It is only unfortunate that our operational level is never as far advanced as our knowledge level. Many of our present ideas and practices regarding the long cane and the use of the sighted guide were advocated almost a century ago, in 1872, by W. Hanks Levy, who wrote of mobility in Blindness and the Blind — A Treatise on the Science of Typhlology.5/ He spoke of the value of mobility for the physical and psychological well-being of the blind person and stressed that the development or restoration of independence in mobility through various means, such as a stick, dog, even a gander, could give the person a confidence and self-reliance which no other ability had the power to give.

Levy considered, as we do, the exclusive use of sighted guides as the most dependent mode of locomotion for the blind person, but he recommended that, if they must be used, the blind person should employ his guides, rather than use a family member.

In our mobility training programs today, we consider the learning of a formal human guide technique to be part of the total process of gaining independence in mobility. The blind person must be able to use the guide as a tool for information and protection and, as is the case with any device, should be an active participant in his travel with a guide rather than "being taken" somewhere. When at times, in certain types of dangerous, complex or social situations, the blind person using a dog or cane decides to accept assistance from a sighted person, he himself is responsible for determining the procedure followed, this procedure being designed to give him maximum information from the movements and directions of his guide and to be acceptable in appearance.

Dog's Value Long Recognized

In addition to the human guide, blind people, for as long as man's activities have been recorded, have used some kind of stick or staff in order to aid them in moving about on their own. They procured shepherd's staffs, twigs, sticks and rods, long and short, of any type of material available, and used them for many different purposes: to locate a path, to guide around obstacles, to support the weight in case of falling, or to attract the attention of sighted people that a blind person was coming.

It would seem logical that the dog would also be used as an aid in travel, for since primitive times man has recognized the capacity of the dog to serve him in a variety of ways.

5/ W. Hanks Levy. "On the Blind Walking Alone, and Of Guides." Reprinted in Outlook for the Blind, Vol. 43 (April, 1949), pp. 106-110.

Early and medieval art depicts the blind man using the dog as companion and guide. It was usually a small dog, held by a long leash of rope or chain. In all paintings of a blind man walking with a dog, a staff, stick or cane was always carried in the free hand. This practice is still seen in Europe today.[6/]

Although formalized training of dogs as guides did not develop until World War I, individuals in the 18th and 19th centuries wrote of how they had successfully trained dogs as their own personal guides. In Vienna in 1819, Johann Wilhelm Klein referred to the training of dogs as guides for blind persons in his "Textbook for Teaching the Blind." He suggested that a short length of wood be used instead of the leash, thus introducing an idea which led to the development of the rigid U-shaped harness used today and through which guiding movements of the dog are better perceived. He also recommended that the dogs be trained by sighted instructors, especially in the beginning phases of the training.

It is interesting to note that many of the major educational, technical, sociological and psychological advances in the field of work for blind persons have come about as a result of crises or emergency situations, such as the World Wars and the siege of retrolental fibroplasia in infants. Such critical situations have created the necessity of working with large groups of people who must be helped immediately, and often in an effort to find solutions, new techniques and procedures were experimented with which proved effective and revolutionary, but which might not have been as readily adopted had they been tried out with the small "standard" caseload. The two World Wars provided the crucial setting for the development of standardized devices and techniques in mobility.

The Dog Guide

The dog guide movement had its beginnings in Germany during World War I. An organization in Oldenburg, Germany, under the direction of Dr. Geheimer Stalling, was training search dogs for the sanitary service of the German Army. By the end of 1915, there were 2500 trained search dogs working on the war fronts, and Dr. Stalling, realizing that the number of war-blinded was increasing rapidly, decided to try to train some of these dogs as guides for the blind. In 1916 the Oldenburg Society organized the first permanent school for the training of dog guides.

The Oldenburg Society began to train dogs for the civilian blind in 1922 and, as the demand for dogs increased, initiated the breeding of dogs and the training of instructors, and additional schools and branches were opened.

In 1923 a dog guide school was opened at Potsdam, and this is where Mrs. Dorothy Harrison Eustis, the American who founded the first dog guide school in America, first came in contact with the idea of educating dogs to be guides for blind persons. She had been working with the Swiss Army to train German Shepherd dogs for combat communications work during the war, and at her estate, "Fortunate Fields," in Vevey, Switzerland, had been studying and experimenting with the scientific breeding and training of various types of dogs.

6/ Nelson Coon. A Brief History of Dog Guides for the Blind. Morristown, N. J.: The Seeing Eye, Inc, 1959.

There were several objectives in her work in Switzerland: to produce a superior strain of dogs, through selective breeding, which would be equipped mentally and physically to work closely as a unit with man; to develop and improve methods of educating dogs; to find new ways for dogs to serve man.7/

Magazine Article Created Interest

All of these objectives seemed to fit the work of training dogs as guides for the blind, and when she returned to Switzerland from the dog guide school in Germany, Mrs. Eustis wrote in the Saturday Evening Post of her admiration for this work. Her article appeared in the United States in November, 1927, and was entitled "The Seeing Eye," taken from Proverbs. Upon reading the article, a young American who was blind, Morris Frank of Nashville, Tenn., wrote to her inquiring about the possibilities of his getting a dog for himself and, if he were successful, of establishing a similar dog guide school for the blind in America. In 1928, Morris Frank went to Switzerland to be trained in independent travel with the first Seeing Eye dog, Buddy I.

When he completed his training, he returned to America, tested the feasibility and the impact on the sighted and blind public of the use of a dog guide, and decided that it was time to begin this work in the United States.

The Seeing Eye, oldest and largest dog guide school in the United States, was incorporated in January, 1929, in Nashville, Tenn. Because of the limitations on training imposed by the warm climate, it was shortly thereafter moved to Morristown, N. J., which has been its permanent location ever since.

Following the organization of The Seeing Eye in America, Mrs. Eustis opened a school of the same name in Vevey, Switzerland, which had a threefold purpose: 1) to educate experimental dog guides for the various countries of Europe which had expressed an interest in including this type of mobility training in their programs for the blind; 2) to educate dog guide instructors for those countries which had decided, after trial, to adopt dog guide training for the blind; 3) to advise these countries in the establishment of schools and in the administration of the training.

Non-Profit Organization

From this initial effort, only the English school, Guide Dogs for the Blind Association, has continued to operate. In 1933, The Seeing Eye in Switzerland was closed, and all operations since then have been concentrated in Morristown, N. J.

The Seeing Eye, Inc., is a national (serving the United States, Canada, and Puerto Rico), private, non-profit organization which has established and steadfastly maintained high standards in its policies and practices of dog guide training. It is recognized as the international authority on dog guide training for the blind and functions as an advisor and technical consultant to help other countries establish similar schools. In 1962-63 The Seeing Eye provided an intensive program in organizational and training methods to the training

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7/ Dickson Hartwell. Dogs Against Darkness. New York: Dodd Mead and Co., 1960, p. 24.

director of the newly-formed dog guide school in Madrid, the first such school in Spain.

Because The Seeing Eye is the standard-bearer in the field of dog guide training for blind persons, and because other agencies, founded later, have used The Seeing Eye as a measuring stick, either to adopt or reject its standards, The Seeing Eye will be cited in this discussion of the use of the dog as a mobility device for blind persons.

'Sharing Relationship'

The properly trained dog guide has proved to be a highly successful mobility device for some blind persons because it enables the person to move with confidence at a brisk pace and facilitates straight-line walking. Its use demands erect posture and rhythmic movement, and thus the blind person can make a good appearance when traveling with a dog guide. Because the dog has sight, the blind person can avoid obstacles rather than make physical contact with them.

The use of a dog guide can also be therapeutic in the sense that the blind individual must express himself to the dog with warmth and understanding and develop a sharing relationship with it.

The Seeing Eye uses several breeds of dogs in its training program. The greatest percentage are German Shepherds, but Labrador Retrievers, Boxers, Norweigian Elkhounds and a few other recognized breeds also are used. Seeing Eye breeds many of its German Shepherds on its own breeding farm and continually is experimenting to develop better characteristics in these animals.

The dog guide must be big enough to pull the blind person away from danger, and it must have a coat that is easy to keep clean. The dog must have keen senses, quick reflexes, a stable, responsive temperament and intelligence. It must be willing and "teachable" because it is necessary to develop in the dog a sense of responsibility and discipline. This is only possible through strict, consistent training procedures.

Train Together for Month

The dog enters training for guide work when it is 14 months old. It is trained by the instructor for three months and is then placed with the blind person. Eighty percent of the dogs are females.

The blind person and the dog are trained together for a period of one month. In this time the master learns to walk with the dog on his left side, holding a rigid U-shaped leather harness and a leather leash. He must coordinate his movements with those of the dog and must learn to interpret and act upon the kinesthetic information he receives from the harness. He has to learn how to communicate with the dog and must be consistent in his verbal rewards and corrections for both desired and undesired behavior.

Since the dog guide is a working dog, and will remain completely effective only if it is kept functioning, the person who is accepted for a Seeing Eye dog

must have some goal in mind for obtaining a dog guide; he must want to be independently mobile because he has an educational or occupational purpose in mind. (According to a recent survey, 90% of the Seeing Eye graduates have jobs or are usefully occupied.) The Seeing Eye also requires that the blind person affirm his independence and self-respect in obtaining mobility training with a dog guide by discharging on his own the nominal cost of $150 for his first dog, and $50 for each subsequent dog.

Standard requirements for obtaining a Seeing Eye dog are that the person:

a) be in good health and possess average intelligence and temperamental balance

b) be between the ages of 16 and 55, although the top age is flexible, depending on the capacity of the individual

c) have less than travel vision.

A person with a hearing loss may be accepted if he is able to discriminate traffic sounds.

Considering More Formalized Training

Because of the present dog guide training procedures, the blind person, in order to derive the greatest benefit from his training with a dog guide, should possess good balance and muscular coordination and should be able to maintain his orientation. But there are many blind persons, who, before entering training for a mobility device, have had no opportunity to develop effectively their sensory awareness.

Since the training of the remaining senses is most effectively accomplished in conjunction with meaningful activity, such as learning to travel, it is encouraging that The Seeing Eye is giving consideration to a more formalized sensory training and physical conditioning program for those students obtaining their first dogs.

Not only did The Seeing Eye successfully establish the first formal mobility training program in the United States, but it was also years ahead of the rest of the field in recognizing that the mobility instructor must be specially trained in his work.

In order to teach both dogs and blind persons and bring them together in a healthy, working relationship, the dog guide instructor must possess certain positive characteristics, in addition to physical fitness:

1) He must be able to establish a working relationship with his students and, thus, should possess patience, tact and adaptability.

2) He must like to work with dogs.

3) While Seeing Eye does not require a college education, it does look for interest on the part of the instructor in subjects related

to the work, such as psychology, animal husbandry, physical education and education theories. The dog guide instructor at Seeing Eye must serve an apprenticeship of at least three years, and Seeing Eye maintains complete responsibility for the training of all its instructors.

The Seeing Eye has put its rich endowments to work by sponsoring several research studies on mobility which have added to our knowledge of factors influencing the independent mobility of blind persons. In late 1963, it gave a grant in combination with federal funds to the Stanford Research Institute in California for the continued development of an experimental guidance device.

Some Play Upon Emotions

While the history of the dog guide movement in the United States is essentially the story of The Seeing Eye, there are other dog guide training centers in the U. S. Two which are patterned to some extent after The Seeing Eye are Leader Dogs for the Blind in Rochester, Mich., founded in 1939, and Guide Dogs for the Blind, Inc., in San Rafael, Calif., founded in 1942.

Some of the other dog guide agencies founded later deviate sharply and dangerously from professionally defined functions and responsibilities. California had to pass legislation in an attempt to standardize dog guide instructor requirements in that state, but this is only one of many abuses to be found in a service field that possesses so remarkable an appeal to the public. Some dog guide schools (as well as other types of agencies for the blind) deliberately play upon the emotions of the public in presenting their activities for fund-raising purposes by presenting images of darkness, poverty and helplessness which reinforce the stereotyped ideas that the public holds about blindness.

One dog guide agency arbitrarily has enlarged its scope of operation to offer mobility training with the cane, in addition to the dog, apparently without realization of or concern for the danger of short-term crash training programs. Much harm can be done to blind persons from such flagrant violation of educational principles. Even the professionally-trained mobility instructor will have failures, but how much greater the chance of failure and damage to the blind individual's self-confidence and desire for independent travel when the instructor does not understand the techniques he is trying to apply and does not realize the importance of a successful pattern of experiences in developing mobility skill and independence.

Opposed to Dogs for Children

Since 1929 more than 5000 blind persons have received training with dog guides from the three oldest and largest dog guide schools in the country. Approximately 5% of these have been between the ages of 16 and 20, while even less have been 15 and 14 years of age. However, there is a movement afoot at the present time to train dogs as companions and guides to blind children.

The leading dog guide schools, as well as other recognized leaders in the field of work for blind persons, feel that to give a blind child the responsibility

of a dog guide, which is not a pet but a working tool for independent mobility, would be interfering with the child's growth process and would threaten the public's acceptance of blind adults who use the dog guide as an effective mode of independent, responsible travel. Thus, they have gone on record as being categorically against the use of dog guides by blind children.[8]

According to a recent study of travel adjustment in blind persons, supported by The Seeing Eye and conducted by the New York School of Social Work, less than 1% of the total blind population in the United States uses a dog guide, and only an additional 1% could use a dog guide as an effective mode of travel.[9] There are several reasons for this small percentage: most of the blind population are older than the upper age level set for obtaining dog guides; some are too young; some have additional handicaps; and a great many have too much residual vision to be able to use a dog guide properly.

This leaves 98% of the blind population who either do not need a device, are not capable of using or ready to use a device, or must use some other kind of mobility device.

Many Factors Involved

Those who do not need a mobility device may be those partially-sighted persons who, although they have severe limitations of vision, nevertheless are able to obtain some of the necessary visual cues in their environment that permit them to travel without a mobility aid. However, studies show that even though approximately 80% of the blind population possesses some residual vision, a substantial number do not travel or are not independently mobile. Thus, factors in addition to the mere objective diagnosis of amount of vision must be taken into consideration when evaluating the mobility training needs of the partially-sighted person:

What type of residual vision does the person have? Tunnel, peripheral, upper quadrant: And how much?

What was the age at onset of loss of vision and what type of visual impairment was it?

What is the prognosis for the remaining vision?

Under what environmental conditions — such as bright sunlight, an overcast day, similar or contrasting colors and shade patterns, and fine or gross movements of objects — can the remaining vision be useful and with what modifications of posture, head and eye movements?

How efficiently does the person use his residual vision and how effective is he in interpreting available visual cues?

Would an optical aid be feasible?

Often we have seen a person whose amount of vision is objectively so limited that he is placed within a legal definition of blindness, and yet he uses

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8/ "Dog Guides and Blind Children — A Joint Statement." New Outlook for the Blind, Vol. 57 (June, 1963), pp. 228-29.

9/ Samuel Finestone, et al.. The Demand for Dog Guides and The Travel Adjustment of Blind Persons. New York: Research Center, New York School of Social Work, 1960.

his vision to gain a great deal of information about his surroundings. On the other hand, some people with the same type and amount of vision cannot function at all in a visual way. Quite often individuals who lose their sight gradually are able to make a subtle transition from a visual orientation to the environment to orientation through the remaining senses. However, since the development of confidence in the use of the remaining senses is a primary objective in any orientation and mobility program, and since the residual vision is one of the remaining senses in the person visually impaired, a thorough training program should be considered a necessity for the partially-sighted individual.

Some Unable to Use Device

Those blind persons who do not have the capacity to use a special mobility device may be the aging and those with other handicaps, such as cerebral palsy, paraplegia or permanent disturbance in equilibrium.

With at least 50% of the blind population and 70% of those with severe visual impairment over 65 years of age, workers in the field of mobility must begin to establish some objectives of service to the aged. The aging process itself brings on many serious problems other than blindness: loss of career, companionship and motivation; increasing loss in the whole sensory area; loss of mobility due to the deterioration of muscle tone, physical stamina and skeletal strength. We need to know more about the mobility capability of the aging blind, and the effectiveness of sensory training in restoring the more generalized loss of reality contact, so that the life of the aged person who is blind can become more meaningful and satisfying.

On the opposite end of the continuum of mobility training from the aged is the blind child, who must develop a "readiness" physically and psychologically to use a special mobility device. He must gain certain competencies in mobility on each of the various levels of his growth — from birth through adolescence to adulthood.

Must Be Helped to Feel Secure

Orientation and mobility for the blind child involves, as it does for the sighted child, the establishment of a meaningful relationship with his surroundings. It means awareness of and effective interaction with the physical, the psychological and the social factors in the environment.

The blind child must be given every opportunity to develop physical contact with reality and must be helped to feel secure and comfortable in his surroundings. He cannot do this if left to his own resources. He cannot develop "naturally" toward the full realization of his potential unless he is stimulated and taught to respond to the stimuli in ways which will be successful and eventually self-motivating.

When we help the blind child to exercise a "creative command of the environment," we are recognizing his desire and innate drive for independence and interaction, and we are laying the groundwork for the development of the more complex orientation and mobility skills which he will need when he gets older.

Educators at the Bear Mountain Conference on Itinerant Teaching, in discussing the child's need for a "creative command of the environment," emphasized that the learning of orientation and mobility skills must be geared to the level of growth in the child, i.e., pre-school, pre-adolescence and adolescence.10/

It is in the pre-school years — from birth to five or six years — that the child builds the necessary base of confidence and security which enables him to move to meet his environment and begin to control it. In these years, we can capitalize on the child's natural curiosity, eagerness and sense of discovery by introducing him to objects, people and experiences and by allowing him to explore, test and experiment with the forces in his environment. He must be encouraged to develop open, strong and spontaneous muscular reactions so that he does not become restricted in his body movements due to the absence of visual space experience.

Serious Lag in Training

As professionals become more aware of the needs of the blind child, an increasing array of services is being offered for the pre-school blind child: visiting counselors, day and residential nurseries and nursery schools, summer institutes for parents and their children, and in some cases, placement in regular day nursery schools.

The most serious lag in the orientation-mobility training of the blind child comes during his elementary and pre-adolescent school years. When he reaches this age, he is put in a kind of "no-man's land," somewhere between the development of his basic orientation to the world during his pre-school years and the learning of a mobility tool for broader independence during adolescence. Schools for blind children do not offer formal orientation and mobility training until the child reaches the secondary level, if it is offered at all. Too many resource and itinerant teachers in public school programs have been of the general opinion that because the child is able to "move" from class to class, he is mobile and well-oriented.

These attitudes indicate a narrow concept of the place of orientation and mobility in the life of the blind child. We cannot suppose that the child's sensory growth and integration or his awareness of all influential factors in his environment is complete by the time he matures enough to enter an academic setting. The orientation of the blind child requires extensive physical and psychological adjustment and must be part of his total growth process, as is his literary education. It does not begin when the mobility specialist first meets the student for formal mobility lessons with a long cane but must be, throughout childhood, a continuous process of familiarization, exploration and increasing awareness of the impact of the environment on his own movements and reactions.

Workshops Held for Teachers

The solution to this lack of continuity in the blind child's orientation process lies in the incorporation of a course in orientation and mobility

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10/ "Itinerant Teaching Service for Blind Children," Proceedings of a National Work Session, Bear Mountain, New York: American Foundation for the Blind, 1956.

philosophy and techniques into the regular university curriculum for teachers in special education, so that the teacher of blind children will know not only that the blind child can be mobile but how and why.

In the meantime, attempts have been made to inform present teachers of partially-sighted and blind children about validated orientation and mobility techniques desirable for blind children to develop and use by means of workshops that have been held at several residential schools and at special education departments of universities in various parts of the country.

These orientation and mobility workshops were initiated by the American Foundation for the Blind, and were conducted by experienced mobility personnel from the Blind Section of the Hines Veterans Administration Hospital and The Seeing Eye. The Hines personnel, under the leadership of Russell C. Williams, had been the key figures in developing, refining and validating the pre-cane skills and long-cane techniques as well as a program of sensory training, which is vital for orientation to the environment and the effective use of the cane. The first workshop was held at Denver, Colo., in 1958 and since then there have been others, such as at San Francisco State College and the University of Minnesota, which have been held annually since 1959 and 1961, respectively. As more graduate peripatologists and orientation and mobility specialists enter the field, these workshops should become more prevalent so that teachers and parents of partially-sighted and blind children will be able to reinforce the use of effective techniques in their daily contacts with the children.

If his previous training and development in orientation skills has been favorable, the blind child, when he reaches adolescence, will have progressed to the point where he is ready to accept and use a mobility device. This "readiness" for a device and for a structured technique in using the device implies that the adolescent has reached a level of physical and psychological maturity which enables him to recognize the value of the tool and to assume responsibility for his own conduct and safety as he travels.

Cane Answer for Majority

No child or adolescent should be given a mobility device until he is mature enough to understand what it is to be used for, and this usually means until he has an objective need for it, such as to go off-campus for social events or to enroll in a public school. With proper counseling, the blind adolescent should participate in the final selection of his mode of travel.

For the majority of blind persons who need to use a mobility device to travel safely and independently and who cannot or do not want to use a dog guide, the cane must be the present answer to their mobility problem. Because of its simplicity, the cane is the most adaptable of the mobility devices available to blind persons and, therefore, it can be used by most people with some degree of success.

While blind persons have traditionally used some kind of cane to aid them in moving about, it has been only in the present century, and indeed only within the last two decades, that canes have been developed which are specifically designed to meet the independent mobility requirements of the blind person.

In the period between the two World Wars, the "white cane" was the most widely-known and used cane for blind persons. This cane, patterned after the standard orthopedic cane, is made of wood, is between 36-40 inches long and approximately one inch in diameter, and is painted white with a red tip. It became known in this country in 1930 when the Lions Club of Peoria, Ill., succeeded in obtaining passage of the first White Cane Law, giving blind pedestrians the right-of-way in crossing streets. In 1931 the Lions Clubs adopted the white cane movement as their national program and have issued thousands of canes to blind persons free of charge.

White Canes Now Obsolete

Thus, with a special cane to provide some means of protection and identification, many blind persons who had not previously traveled were encouraged to move out more freely into the community. In this respect, the white cane movement was a milestone in mobility for blind persons.

However, with the advent of special devices which more adequately meet the mobility needs of blind persons and with the increase in mobility training programs, the short white cane has become obsolete. The white wooden cane is too short, heavy and cumbersome to be handled in any graceful way by the blind person in his attempt to gather information and protect himself as he walks. It was actually not designed for a blind person at all but for the person who needs support for his weight.

It is the function of the special cane to act as a detector, enabling the blind person to gather vital information about his surroundings and to protect himself in the presence of obstacles. In this respect it is an extension of his remaining senses and gives him kinesthetic, tactile, vibratory and auditory cues which he can use to keep himself oriented and to travel safely and gracefully.

There are certain construction requirements which must be satisfied in order for the special cane to be used with maximum efficiency. It must be long enough to provide adequate reaction time so that the user can stop or change direction when he receives the appropriate cues. It must be made of a material which will readily and reliably conduct its vibrations to the tactile-kinesthetic sense. It must be durable in order to provide consistent relay of sensory information. And yet the special cane should be light-weight and well-balanced, so that it can be used effectively for extended periods of time without fatigue.

Using Hoover Technique

In order for the blind person to get the maximum amount of information and protection in using the "long" cane, he must learn to use it according to a special technique, commonly known as the Hoover, or touch, technique.

The Hoover technique consists of the rhythmic movement of the cane from a focal point in front of the vertical midline of the body. The cane is moved in alternate time with the footsteps, so that when the right foot is set down, the tip of the cane is touching on the ground ahead at a point one inch outside the left shoulder, and as the cane is pivoted to the right side, the left foot is

coming forward. Thus, the blind person constantly is stepping into an arc of scanned area, this known area changing every time he takes a step.

The tip of the cane should be of such material (e.g., a hard wood or nylon) as will enable the person to be sensitive to the texture of the terrain as he touches it, and still give out meaningful, but not extraneous, sound pulses. The nylon tip seems to be most effective, since it is not affected by changes in weather, does not catch unnecessarily, and does not wear down as quickly as the wooden tip.

Although many people have adapted the Hoover technique to all types and sizes of canes, the "standard" long cane is one which is measured according to the individual's height and stride and consists of a one-piece aluminum shaft, one-half inch in diameter, with a crook at the top which may be more or less curved. Since this cane is measured according to the height of the individual, the correct length for one may be too short for another, so that a better term for the "long" cane may be "cane of unusual length," or prescription cane.

A body of knowledge and techniques concerning mobility with the long cane (and self-protective techniques for use in familiar areas without the cane) has been compiled since World War II. This has proved to be the most suitable type of mobility training for educational and rehabilitation programs, both for the congenitally and adventitiously blind. There are several reasons for this. First, dog guide training requires special facilities not available or feasible for the training settings of agencies or schools. Second, mobility training with the long cane is more adaptable to the wide age ranges of the clients in educational and rehabilitation programs. Third, in learning to travel with the long cane, the person is able to become mobile to some extent immediately; he is learning to establish contact with his environment; and he must necessarily train and use his remaining senses to their maximum.

Many Feel Cane too Long

The use of the prescribed cane with the Hoover technique enables the person to walk with his natural gait and erect posture, so that he makes a good appearance and reduces his conspicuousness as a blind person. Nevertheless, the long cane and the movement characteristic of the Hoover technique do identify the person as blind, for the special use of the cane is easily recognized by the sighted public. However, in observing the proper use of the long cane and the natural appearance it enables the person to maintain, the public is more inclined to identify the blind person as one who is capable, self-reliant, and willing to interact with sighted society.

Many workers in the field, especially those who are blind, feel that the prescribed cane for use with the Hoover technique is unnecessarily long and too inconvenient to use. To the person not trained in its use and/or not feeling comfortable with it, the long cane will seem to be too long. We would all appreciate an adequate collapsible cane which would combine the sturdy characteristics of the "standard" long cane with the convenience of putting it in the pocket or purse when it is not in use. But until such a cane is developed, we cannot sacrifice reliable protection and information for convenience. Usually we have found that once the person accepts his realistic need for the

cane and learns techniques for using it, he encounters very little difficulty in trying to find a place for it in various types of situations.

Began Rehabilitation in World War I

The long cane and the Hoover technique had its beginnings during World War II with the development of the rehabilitation program for the war-blinded. The Army program for blinded veterans should be studied carefully, for it provides a model of courage, insight, common sense and initiative in dealing with the physical problems of blindness.

Modern and enlightened rehabilitation training for the newly-blinded dates from World War II, but the stage for such work was set by events in World War I. Organized efforts for the rehabilitation of the war-blinded began during World War I. France, Belgium, Germany and Italy had established various types of training and "re-education" programs for the war-blinded. In England, St. Dunstan's was founded as a readjustment and vocational training center and offered life-long aftercare to Britain's blinded servicemen and women.

The rehabilitation program for blinded American soldiers during World War I was conducted at The Evergreen School (General Hospital #7) near Baltimore, Md. Evergreen was opened in July, 1918, under the War Department, and the staff and consultants for its re-educational program were recruited from institutions for the blind throughout the country.

The blinded veterans at Evergreen, in addition to receiving medical care, were given courses of instruction in the communications skills, but the main emphasis during training was placed on vocational guidance and training.

The Evergreen program was largely ineffectual in its training procedures. The War Department recognized this almost immediately and ordered that those blinded soldiers who had completed their medical treatment should be discharged from the military service. Evergreen was subsequently operated by the Red Cross and by the Veterans Administration until it closed in June, 1925.11/

It has been roughly estimated that approximately 500 blinded veterans received special training after World War I. Aside from those who were at Evergreen, some were trained at other institutions for the blind, and some received no training at all. Many of the blinded veterans did nothing after they left the service.

When blinded casualties began to return to the United States during World War II, the Veterans Administration and the Office of Vocational Rehabilitation Services for the Blind were determined that the unsuccessful attempts at rehabilitation during World War I would not be repeated in this war. Thus, immediate action was taken to investigate the possible courses that could be taken to implement a thorough rehabilitation training program for the blinded casualties. This time there was more definitive planning of the program, and more realistic goals were set for the war-blinded.

11/ James N. Greear. Ophthalmology and Otolaryngology — Surgery in World War II. Washington, D. C.: Office of the Surgeon-General, Department of the Army, 1957, pp. 148-51.

In May, 1943, two Army hospitals were designated as special treatment centers for the blinded soldiers: Valley Forge General Hospital in Phoenixville, Pa., for the east coast, and Letterman General Hospital in San Francisco, for the west coast. Dibble General Hospital replaced Letterman in August, 1944. The Navy centralized its blind rehabilitation program at The Philadelphia Naval Hospital.

Classic in Rehabilitation

The Army program at Valley Forge has become a classic in the field of rehabilitation for blindness. With a large number of blinded casualties brought together for treatment, it was possible and necessary to experiment with new ideas and techniques and to test the feasibility of standardizing procedures in mobility training. The tremendous success of the program had immediate and far-ranging effects on the total field of work for blind persons and caused us to examine the directions we were taking in attempting to establish independence for blind persons.

The rehabilitation of the newly-blinded soldier at Valley Forge was defined and implemented according to certain general objectives:

1) Physical restoration

2) Vocational and economic restoration

3) Social restoration:

Social restoration referred to the need of the blinded soldier to gain personal independence in the routines of daily living and to develop his general orientation to life as a blind person. This involved development of an understanding of what the handicap of blindness was, how it would influence his life as a family and community member, and what he could do to adjust to his blindness.

The training directors at the Valley Forge Eye Center recognized that orientation to the immediate surroundings, the use of the remaining senses, and the ability to move about freely and at will were routines of daily living and were basic components, in addition to eating, shaving, and dressing, of personal independence for the newly-blinded patient. They also recognized that these activities had immediate therapeutic value, helping the patient to emerge from his shock and depression and begin to live again.

Consisted of 44 Lessons

Thus, while medical treatment was still being given, the patient was gradually and carefully introduced to techniques for self-care. As he became physically stronger, his activities and area of operation broadened, so that he was taught to move about his own cubicle, then the ward, then the entire hospital facilities, and finally outdoors in residential and business areas.

The orientation and mobility program for the blinded patient consisted of 44 lessons — 22 in the hospital and 22 outdoors. The cane was introduced in the seventh lesson. In moving about familiar, controlled situations, such as

his own cubicle or various classrooms and offices, the patient was taught self-protective techniques without the use of the cane. However, for travel to various parts of the hospital and for all outside travel, the patient was taught to use a cane at all times. This provided the opportunity for him to practice and perfect the cane techniques and skills introduced in the lessons and prevented the formation of poor habits of posture and gait which can develop when the blind person is unsure of his safety in taking his next step.

It was at Valley Forge where the idea of a long cane as a mobility device for blind persons first became a reality. The long cane was developed because the people responsible for the retraining of the blinded soldiers at Valley Forge, and notably 1st Lt. Richard Hoover, director of physical reconditioning, orientation and recreation, had the courage and sincerity of purpose to say: "blind people travel miserably," and then do something about it.

What Hoover did was to lengthen the white wooden cane to 45 inches and devise a technique for using it which would provide maximum safety, ease and even grace while traveling. But he did not stop there. This cane, even though made of light wood, was heavy and cumbersome. This deficiency, combined with the frequent lack of an adequate supply of these canes during the war, caused Hoover to experiment with the possibility of using a light, durable metal tubing for the canes.

The cane that was subsequently developed and used at Valley Forge was the prototype of the special long cane used today in standard orientation and mobility training programs. It was approximately 46 inches long, weighed 8 ounces, and had a shaft one-half inch in diameter. The crook of the cane was "egg-like" in shape, similar to the crook of the shepherd's staff.12/

Orientors Given Thorough Training

The personnel selected to instruct the patients in basic orientation and travel techniques with the long cane were enlisted men recruited from all branches of the Army. Since these men had had no experience with blindness or blind persons prior to their induction into the Valley Forge program, it was necessary to develop a course of instruction to give the "orientors" basic knowledge and personal experience in what they would be teaching.

This training program extended over a two-week period and consisted of 98 hours of lectures, demonstrations, discussions and practical learning experiences in applying the techniques under the blindfold.

At the end of the basic training course, the orientors were tested on their knowledge and performance and thereafter were given on-the-job training and supervision as they worked with the patients. Meetings of directors, supervisors and orientors were held weekly to discuss problems of the patients and orientors.

This training program for the orientors at Valley Forge may well be considered historic, for it was the embryo from which grew the movement to

12/ Richard E. Hoover, M.D. "The Cane as a Travel Aid," Blindness: Modern Approaches to the Unseen Environment, edited by Paul Zahl. New York: Hafner Publishing Co., 1962, p. 357.

professionalize the field of mobility instruction. The principles and procedures that evolved from this initial training program are reflected in modern philosophy of professional preparation of mobility specialists.

Even in its own time, the Valley Forge program of orientation and mobility began to influence the field, for in 1946 Richard Hoover returned to the Maryland School for the Blind, where he had previously taught physical education, and began to instruct the older students in the newly-developed and validated techniques of mobility with the long cane. In the summer of 1947, he gave two short, intensive training courses to sighted persons who were going to teach mobility in rehabilitation programs for blind adults.

One of the orientors from Valley Forge went to the Kentucky School for the Blind to inaugurate a mobility training program. He was the only one of the 17 orientors at Valley Forge who continued in the field of mobility when discharged from the Army, although several others have gone into different rehabilitative services for blind persons.

Needed Time to Evaluate Losses

As the programs of initial readjustment to blindness progressed at Valley Forge, Dibble and the Philadelphia Naval Hospital, it became increasingly clear that the blinded patient was not getting in these programs all that he needed to adjust to his blindness. He was learning mechanical and physical skills that objectively would assist him to live an independent life as a blind person, but often the patient was too recently blinded to feel the need for such training.

The blinded soldier needed time to evaluate his losses, take stock of his capacities, and reorganize his life. The Army felt that the blinded veteran could not make maximum use of job training and employment if he did not have his blindness under control. Therefore, in June, 1944, a training center for the "social readjustment" of the blinded veteran was established at Avon, Conn. Avon Old Farms Convalescent Hospital was designated for use by both the Army and the Navy, but the Navy decided to send its blinded personnel to the New York Institute for the Education of the Blind. Here the emphasis was on testing, guidance and counseling, and the blinded veteran received only two weeks' training in the special skills essential to living as a blind person.13/

The training program at Avon was of 18 weeks' duration and consisted of orientation and mobility, counseling and testing, and vocational guidance and training.

'Facial Vision' Emphasized

The orientation and mobility phase included orientation to the grounds, traveling with a cane in residential and business areas, and training of the remaining senses.

A great deal of emphasis at Avon was placed on research and the training of the remaining senses, especially "facial vision." Training in "facial vision"

13/ J. N. Greear, Ibid., pp. 188-208.

was also conducted at Dibble General Hospital, but was apparently considered unsuccessful. This was at the time when Dallenbach's experiments on "facial vision," or obstacle perception by the blind, published in 1941, were being widely discussed. Much work was done on developing a mental picture of the surroundings through the power of visualization, and a great deal was learned there which is being applied today in programs of total rehabilitation for blinded adults.

However, Avon seemed to have many artificial objectives in its training program. The trainees were discouraged from using the cane on the grounds in order to facilitate sensory training and many of the blinded veterans lost not only the skill they had developed in using the cane at Valley Forge but also their motivation to use a cane at all.

Avon Old Farms Convalescent Hospital was closed in 1947, all but the "long-term" medical cases having passed through the rehabilitation program by that time.

Center of Progressive Thought

Plans were made for a continuing Army rehabilitation program to handle those veterans who would lose their vision later on, and Hines Veterans Hospital near Chicago was appointed the Central Blind Rehabilitation Section.

The Blind Section took in its first patient in July, 1948, and as of February, 1964, some 1026 blinded veterans had been instructed in its rehabilitation program.

Almost immediately, the Blind Section at Hines became recognized in the field as the center of progressive thought and action on the mobility of blind persons. The Hines personnel has been responsible for the development, refinement and validation of formalized orientation and mobility techniques with the long cane. Through their work with many different types of blindness, alone and in combination with other physical disabilities, such as amputations of the upper and lower extremities, partial deafness and brain injury, the "Hines men" have accumulated a vast amount of knowledge and experience in mobility and sensory training.

In the establishment of the Blind Section at Hines, the orientors were carefully selected from areas such as teaching and corrective therapy and were given intensive training for a period of up to six months. Through their own experience under the blindfold, they learned how the use of the remaining senses and of effective techniques with and without the cane can enable the blind person to gather information about his surroundings and move about safely. In this way, they validated the techniques for themselves and were convinced that they were effective. Then the student orientors were taught through observation and supervised teaching how to teach the orientation and mobility techniques. Thus, the Hines men were the original mobility specialists in the field, and several of these orientors are in key positions around the country today.

Introduction, Observation Period

In 1949, Hines began introducing its validated approach to orientation and mobility training to personnel from agencies for the blind, rehabilitation

centers, and schools for blind children throughout the country. These instructors came to the Blind Section for two and three-week periods and observed the application of the orientation and mobility techniques with the long cane to the blinded veterans.

This, of course, was considered only an introduction and observation period, for no one realized better than Hines itself that, although it had a responsibility to share its knowledge and experiences in mobility training with others, short exposures like this to mobility instruction were a risk — for Hines, for the untrained instructor and for prospective clients.

However, other private and public agencies and schools for the blind were faced with the pressing need of their clients to become mobile, for if they could not travel, they would not be able to function even minimally in other vital areas, such as in college or employment. Since there were no resources for trained mobility instructors, various types of personnel (blind, partially-sighted, and sighted) in the agency or school generally were permitted and encouraged to give mobility instruction to those individuals who seemed to need it.

Demands for Training Increasing

Usually the mobility instructor was a) a worker who knew something about the mobility techniques — through his own personal experience, through his exposure to a short-term mobility training program, or even through reading descriptions of techniques with the long cane found in a pamphlet or book, and b) a worker who happened to be in a position where there was a demand for the blind client to know how to travel, e.g., vocational counselor, home teacher, or physical education instructor. Many of these workers realized that they could not do an adequate job in teaching mobility; many thought they could.

But demands for mobility training were increasing, and people began to recognize that stop-gap services were not adequate to handle the burgeoning caseloads. In October, 1953, the first Mobility Conference was held in Gloucester, Mass., with the purpose of establishing standards for orientation and mobility instruction. At this conference, conducted with the supporting interest of the American Foundation for the Blind and the Veterans Administration and attended by active mobility and administrative personnel in the field, it was resolved that a coordinated effort should be made to provide scientific mobility training to blind persons, patterned after the Army's program. However, the field was not ready to accept this yet, and no action was taken. Yet mobility was being discussed more and more, and the subject of formal training for mobility instructors was becoming controversial.

The next major impetus for mobility instruction occurred in 1958 when the Office of Vocational Rehabilitation placed the training of mobility instructors on its priority list of personnel training needs in the field of rehabilitation for blind persons. From this action a significant chain of events followed, in which the Vocational Rehabilitation Administration has played a vital role. It has been the most influential single agent in organizing awareness of the need for qualified mobility instructors and in establishing mobility programs throughout the country.

In June, 1959, a National Conference on Orientation and Mobility, sponsored by a grant from the Office of Vocational Rehabilitation, was held at the American Foundation for the Blind in New York. The objectives of the Conference were to determine the basic qualifications necessary and desirable in a mobility instructor and to develop standards for the training of mobility personnel.

The participants at the Conference, highly qualified and experienced in the areas of mobility training and administration, unanimously agreed on two principles which should form the basis of any program of training for mobility instructors.

1) that the training program should be on the graduate level and should extend over a period of at least one year.

2) that the mobility instructor should be sighted.[14/]

The establishment of these criteria by a national assembly was revolutionary and marked the beginning of the professionalization in the area of mobility training.

Training of Remaining Senses

As an immediate result of the New York Conference, two graduate training programs for mobility instructors were inaugurated under liberal grants from the VRA. In June, 1960, the Peripatology Program was begun at Boston College with eight students. The Center for Orientation and Mobility at Western Michigan University began training its first four students in September, 1961.

The term "peripatology" is defined as the art and science of training the remaining senses of the blind person for optimum orientation and mobility. It is derived from the Greek: Peri-, meaning around, surrounding; patein, to walk; ology, referring to a science of. Thus, the concept of peripatology can be applied aptly to the learning of orientation and mobility skills by a blind person, as can the term "orientation and mobility" itself, for in its very roots it refers to the standardized body of knowledge and techniques which are used to teach blind persons how to navigate in his environment.

The Boston College program is 14-months long and graduates sixteen peripatologists per year. Western Michigan has a 12-month program and graduates twelve orientation and mobility specialists per year. The curriculum for both programs was developed according to the suggestions of the New York Conference and includes: Physical Orientation and Mobility; Dynamics of Human Behavior related to Blindness; Medical Aspects of Blindness; The Sensorium and its Relation to Blindness; and Cultural and Psychological Aspects of Blindness, in addition to the general and special education courses required by the universities to complete the master's degree program.

14/ Arthur Voorhees. "Professional Trends in Mobility Training." New Outlook for the Blind, Vol. 56 (January, 1962).

The practicum in physical orientation and mobility consists of the personal mastery, under the blindfold, of pre-cane skills and mobility techniques with the long cane and extensive observation and supervised teaching in the various settings where mobility instruction is given.

Need for Specialists Increases

To date, the graduates of the two university programs are teaching orientation and mobility in rehabilitation centers for blinded adults, residential schools for blind children, public school systems and community mobility programs throughout the country. In addition to teaching, some have taken administrative positions and some are entering research.

When the graduate programs were begun, it was estimated that approximately 100 mobility specialists were needed in the country. This has proved to be quite a low estimate, and the number is increasing rapidly as more agencies and schools begin to recognize the value of mobility instruction as given on a structured basis — value in terms of meaningful service rendered to the clients and professional growth of the agency and school.

In December, 1962, the Vocational Rehabilitation Administration established grants for selected demonstration projects in mobility training. Basically, the purpose of these projects is two-fold: to demonstrate the value of systematic mobility training with blind persons as administered by a competent, trained mobility instructor, and to assist reputable, progressive rehabilitation agencies to meet the mobility needs of the clients in their area when they cannot otherwise provide a professional training program.

For an agency to receive a demonstration grant, it must have on its staff or must employ a fully-qualified mobility instructor, i.e., one who has graduated from either of the university training programs for mobility instructors or one who has had five years or more of full-time experience teaching mobility in a recognized training centers.

Other VRA Grants to Experts

To date, ten proposals have been accepted as demonstration projects, and some are being implemented at the present time in agencies in various parts of the country. The results of these guided demonstration projects in mobility should give us valuable data on the effect of various physical and psychological factors on the development of skill in mobility, and, thus, our body of knowledge and techniques in the science of mobility will increase.

Several other VRA grants have been extended to experts in the development and administration of mobility training programs at Western Michigan University. One grant has provided for the establishment of a consultative service by which agencies and schools may obtain advice and assistance in developing new mobility programs or in evaluating and improving their present system of mobility training.

Other grants have provided for one-month training workshops in orientation and mobility techniques to be offered to those mobility instructors who are now teaching in the field but have not been formally trained. This is an

important step in the long-range process of raising the quality of mobility training available to blind persons and establishing standards for the selection of mobility personnel.

The Federal support of mobility training programs — support in principle as well as in funds — is making it possible for more blind persons to develop adequate skill in mobility and thereby to realize more fully their capabilities in all other areas. It is also spurring acceptance of the mobility specialist as a vital member of the multi-disciplinary team working with the blind client in his habilitation or rehabilitation process.

Wide Gaps in Professional Standards

However, mobility instruction as a profession is new and of necessity must prove itself. For the field of work for blind persons has not yet fully accepted the fact that mobility can be learned according to a standardized method without sacrificing the individuality of the person who is blind. It is not yet understood that the trained mobility instructor knows how to apply the basic principles and techniques of mobility training to the individual's own physical, emotional and psychological requirements as he learns to become mobile.

There are still wide gaps in professional standards of mobility training throughout the country, and there is still resistance to the sighted, professionally-trained mobility instructor. Peripatologists and orientation and mobility specialists threaten with eventual displacement those now teaching mobility techniques who are not qualified, either because of blindness or lack of training.

But perhaps even more deeply threatening, the new definition of a qualified mobility specialist challenges the whole stereotypical framework of service to blind persons. This is that "the blind should lead the blind" — that only a worker who is blind can truly understand the needs of the blind client.

Some workers, burdened down with hostility to the sighted world (and this includes some sighted workers as well as blind) cannot accept the fact that while it is true that a sighted person can never know what it is really like to be blind, he can learn, through blindfold experiences, what it is like to operate without sight in different types of situations, e.g., in mobility. They will not concede that a sighted person, by personally analyzing the components of the mobility task, and studying the effects of blindness and the loss of mobility on the physical, intellectual and emotional functioning of the blind person, can teach, and should be the only person to teach, a blind person how to move about his surroundings safely and independently.

Moreover, to admit that training in basic skills is necessary or valuable for a healthy adjustment to blindness seems for some individuals to admit that the person who is blind is not a whole person. Perhaps this is the key to the rejection by many blind workers of special devices and special training programs, both for themselves and for their clients.

Guidance Devices and Research

At the same time that mobility training programs with the dog guide and the long cane are being established and made available to more blind persons,

research is being conducted to develop electronic guidance devices which hopefully will enable at least some blind persons to travel more safely and efficiently and to learn more about his surroundings as he moves.

The concept of an electronic device is not new. In 1897 a scientist in Poland was the first to build a guidance device for the blind based on the photosensitive properties of elements. However, there were no technological possibilities for such a device in that age.

Organized research on guidance devices for blind persons began during World War II. The U. S. Signal Corps developed a scanning instrument using visibile light. In 1944 government research began with the establishment of the Committee on Sensory Devices under the National Research Council. The principle of sound-ranging was explored for its feasibility in detecting obstacles. Devices employing supersonic and ultraviolet media were developed, and by 1947, when the Committee on Sensory Devices was dissolved, fifteen experimental prototypes of guidance devices had been developed.15/

There was no publicly-financed program to develop electronic devices between World War II and the Korean Conflict. However, some independent research was done by Kallman, who developed a precursor of many other guidance devices, consisting of a lens to focus objects in the path of travel and giving the user a sound pattern.

Devices Vary in Structure

Since 1951 many types of guidance devices have been developed; two have been field-tested, with a program of instruction drawn up for one. In its International Catalog of Technical Devices, the American Foundation for the Blind lists 36 "guidance devices and systems," including the 15 developed under the Committee on Sensory Devices, and three types of electronic canes. Not all are the products of American Scientists; several are from Poland, Sweden, England, Italy, and Canada.16/

These devices vary in their structure and function. Some are portable; others are large and unwieldy. Some can detect low obstacles, or down-and up-curbs and holes, while others relay information only about large obstacles. Some scan the path of the traveler; one of the devices detects only edges.

Different types of signals — auditory (some binaural), tactile, and electrical pressure — are used to transmit information to the user through earphones, hearing aids and tactile stimulators in the hand, on the chest, or on the forehead.

Navigational devices, such as a magnetic compass and a straight-line direction indicator also have been developed for use in passing open spaces or in traveling in rural areas.

15/ C. W. Bledsoe. "Guidance Devices," Matilda Ziegler, October, 1959.
16/ Catalog and Appendix of Proceedings of the International Congress on Technology and Blindness. New York: American Foundation for the Blind, 1963, IV, pp. 47-56.

There are two general types of probes with which it is possible to explore the environment: the active, which sends out light, sound or radio waves and receives the reflected signal; and the passive, which scans the environment through a telescopic-like device and responds to light, radio or magnetic fields.[17] The guidance devices developed to date are not in general use by blind persons and are considered experimental prototypes.

Studies of the ultrasonic orientational behavior of bats and other echo-locating animals lead to the belief that a successful ultrasonic guidance device for blind persons is possible, although still in the future. Currently, it is thought that devices using a tactile stimulus for relay of information would be more successful than the auditory.

The engineering design of the electronic guidance device must take into consideration the following factors:

> size, weight, ruggedness, reliability, purchase and maintenance cost, learning period required, interference with other channels of information, attitudes of the user, the family, and the public toward the device.

Fundamental to the scientific development of the mobility guidance devices is a close working relationship between the technical engineer and the rehabilitation specialist, for while a device may be mechanically perfect, it may not give the blind person an effective means of obtaining information.

Answers Needed for Many Questions

No device should be so complicated that it will remove the blind person completely from contact with his surroundings. Artificial sensory impressions can never take the place of natural awareness, but if they are presented simply and in a logical manner, they can supplement the blind person's normal sensory functioning.

In developing electronic guidance devices, we must be seeking answers to such questions as: how much information does a person need in order to travel safely and with awareness? What types of persons will be able to use an electronic guidance device? Should the person be trained first with another device, such as the dog-guide or the long cane?

It was the consensus among the participants at the Conference of Mobility Rehabilitation Specialists held in September, 1961, in Washington, D. C., and at the Mobility Research Conference held at the Massachusetts Institute of Technology in October, 1961, that there is as yet no adequate substitute for the cane and dog as mobility aids and that what is needed from the technological field are devices which will give the blind person additional information, such as a detector of step-downs, and of high objects in the area through which

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17/ Bertil Jacobson. "Passive Systems," Proc. of The International Congress on Technology and Blindness. New York: American Foundation for the Blind, 1963, pp. 187-192.

the head passes, a range-indicator, and a navigational device to facilitate straight-line walking.18/

More work will be done on the subject of mobility devices when the International Conference on Mobility Research meets at The Hague in August, 1964.

Communication in Field Vital

Thus, with the human guide, the dog guide, the long cane, and the guidance device, we are developing a family of mobility tools, which if used selectively and according to their proper design, can enable an increasing number of blind persons to travel safely, effectively and independently.

In attempting to place mobility in perspective, it has become apparent that communication among the various types of personnel, programs and services in the field is a vitally important element in the modern process of mobility training for blind persons. Through conferences, meetings, writings, research and demonstration projects, we are able to keep abreast of current ideas, developments and progress in the field of work for blind persons and can consider them for their value in mobility.

In line with the increased communication which is part of the changing times in work for blind persons, the first Conference of Peripatologists and Orientation and Mobility Specialists was held in Washington, D. C., on April 27 and 28 of this year under the sponsorship of the VRA. Those peripatologists and orientation and mobility specialists who had been working in the field for at least one year met to exchange ideas, share their experiences in mobility training, and evaluate the progress in the field.

Hopes for the Future

Actively participating at the Conference were representatives from the staffs of Boston College, Western Michigan University and Hines, and supervisors from several of the mobility training programs where graduates are now working.

No solution to problems was sought at this initial conference. Rather, its purpose was to explore questions and define areas in the field of mobility which need to be examined. Several of the subjects discussed which will become increasingly important as this discipline grows and matures were:

1) the need for a clarification of the common terms used in mobility instruction.

2) the relationship of the peripatologist and the orientation and mobility specialist to the administrative structure of the agency and school.

3) and the selection of a common name for the professionally-qualified mobility instructor. Hopefully the resolution of the double

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18/ J. W. Lisner, Ibid.

name will occur in the near future, so that unnecessary confusion and division can be dispelled among the mobility personnel themselves and among other workers in the field.

Thus, we can hope that in the future, through communication and interaction based on common understandings and goals, mobility training programs for blind persons will become more widespread and effective so that the mobility potential of every blind person can be more thoroughly realized.

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